

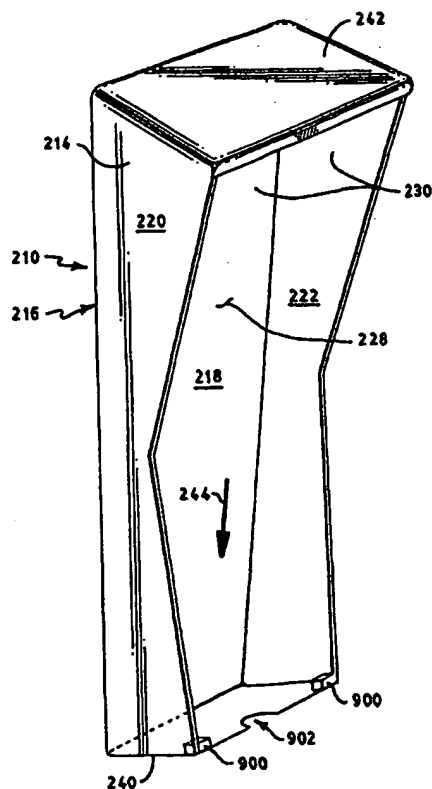
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**(54) Title: CONTAINER AND CARTRIDGE FOR DISPENSING CONTROLLED AMOUNTS OF PAPER PRODUCTS****(57) Abstract**

A container (210) for dispensing a controlled amount of paper products (212) from a cartridge holding a plurality of paper products (212). The container includes a housing (214) having a first end wall (240) and a plurality of exterior walls (216). The exterior walls (216) define an interior surface (230) and an interior area (228) within the interior surface (230) for receiving a cartridge holding a plurality of paper products. A first, second and third of the exterior walls (216) intersect the first end wall (240) on opposite sides of the first exterior wall to form a portion of the interior surface and to define an open face of the container. The container includes a mechanism for urging paper products within the interior area toward the first end wall in a dispensing direction. The container also includes a mechanism that is adapted to hold or retain the cartridge in place.



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## CONTAINER AND CARTRIDGE FOR DISPENSING CONTROLLED AMOUNTS OF PAPER PRODUCTS

### Background of the Invention

5           This invention relates generally to the field of dispensing devices and systems. More particularly, this invention relates to the field of devices and systems for dispensing paper products such as napkins, towels, bath tissue, etc.

          Various types of dispensers for paper products have been developed to provide ready availability of the paper products to users. Such dispensers are often provided in  
10   public places such as restaurants or rest rooms where customers remove from the dispenser a desired amount of paper products for personal use. In some high traffic areas, such as fast food restaurants, a large number of customers may use a paper product dispenser such as a napkin dispenser in a short period of time. Therefore, dispensers have been developed that hold a large number of paper products for use by a  
15   large number of consumers.

          Unfortunately, large dispensers are subject to a number of drawbacks. First, it is difficult to uniformly dispense individual paper products or a controlled amount of paper products from a large dispenser without dispensing more paper products than necessary to a user. Thus, too many paper products are removed by a user, and some of the paper  
20   products are wasted. If too many paper products are removed from a dispenser, the benefits provided by a larger dispenser are eliminated as the dispenser is emptied more rapidly.

          Second, many dispensers are difficult to load, and that difficulty can increase with the size of the dispenser. If paper products are not properly loaded into the dispenser, the  
25   paper products may jam as they are removed thereby preventing further removal of paper products by users. Also, a person refilling a large dispenser is more likely, due to the larger number of paper products involved, to drop some of the paper products onto a floor.

Any dropped paper products are then unsanitary and must be discarded, thereby creating more waste and again defeating the benefits of the larger dispenser.

A further drawback of many currently available dispensers regardless of size is that it is impossible to determine without opening the dispenser how many paper products remain within the dispenser. Thus, a person must either periodically check the dispenser to determine how many paper products remain or be vigilant to refill the dispenser as soon as it is empty. Both alternatives involve much personal attention and, especially during peak usage, can lead to empty dispensers if dispensers are not vigilantly monitored.

#### 10 **Objects and Summary of the Invention**

It is a principle object of the present invention to provide an improved container and cartridge for dispensing a controlled amounts of paper products that can be readily adapted to various applications.

Another object of the present invention is to provide a container and cartridge for dispensing paper products that are simple and inexpensive to manufacture, and that are reliable in use.

Still another object of the present invention is to provide a container and cartridge for dispensing paper products that provide metered delivery of individual paper products or a controlled amount of paper products.

Yet another object of the present invention is to provide a container and cartridge for dispensing paper products that reduce the incidence of waste of the paper products, either due to dispensing too many paper products to a user or due to dropping of the paper products during refilling of the container.

Still another object of the present invention is to provide a container and cartridge for dispensing paper products that provide an indication of the remaining amount of the paper products ready for dispensing to users.

Yet another object of the present invention is to provide a container and cartridge for dispensing paper products that reduce the incidence of jamming of paper products and the resultant inability to dispense further paper products.

Still another object of the present invention is to provide a container and cartridge  
5 for dispensing paper products that supports the weight of paper products so that the paper products are readily removed.

To achieve these objects and in accordance with the purposes of the invention, as embodied and broadly described herein, a container for dispensing a controlled amount of paper products from a cartridge holding a plurality of paper products is provided, the  
10 container including a housing having a plurality of exterior walls defining an interior area for receiving a cartridge holding a plurality of the paper products. A first end wall is located at an end of the container. A mechanism urges paper products within the interior area toward the first end wall in a dispensing direction. A first, second and third of the exterior walls intersect the first end wall on opposite sides of the first exterior wall. The  
15 configuration of exterior walls and the end wall define an open face of the container. Cartridge retaining means in the form of one or more small blocks, chucks, stops, wires, braces, brackets, pins, clips or the like are desirably configured on the first end wall or opposing exterior walls. A finger slot may be cut into the first end wall.

In some embodiments, a first group of protrusions may extend from the second and  
20 third exterior walls into the interior area.

It is contemplated that a fourth exterior wall may include on the container. The fourth exterior wall may be a partial wall or a partial door hingedly attached to the housing, the door being openable for insertion of the plurality of paper products into the interior area. If a fourth wall is used, it may terminate away from and avoid intersecting the first  
25 end wall so it in serves as a cartridge retaining means while still defining an open face of the container. Alternatively, the fourth wall may intersect or contact the first end wall to define a dispensing throat.

If a dispensing throat is utilized, it is desirably sized so that its horizontal dimension is about the same as or slightly greater than the width of the paper products within the container (or cartridge) and its vertical dimension is large enough to permit the passage of a limited number of paper products. For example, if the paper products are in the form of folded paper napkins, the vertical dimension of the dispensing throat may be sized so that a limited number of folded paper napkins may be extracted. This could be achieved by making the vertical dimension some multiple of the thickness of an individual folded paper napkin (e.g., greater than about two and less than about ten thicknesses).

The paper product may be accessed by a thumb slot and/or a finger slot.

In some embodiments, a second group of protrusions may extend from the first wall into the interior area and may desirably be in contact or communication with the first end wall. If utilized, the first and second groups of protrusions contact the paper products to align, support to paper products and/or to oppose the mechanism for urging.

Desirably, the first group of protrusions includes curved bumpers, which preferably include a plurality of ridges extending across the curved bumpers perpendicular to the dispensing direction. Desirably, the second group of protrusions are rib members disposed in a staging area proximate the dispensing throat for spacing, aligning, supporting and/or slowing the paper products.

A cartridge for holding and dispensing a plurality of paper products may be inserted into the interior area of the above-described container, the interior area being disposed within an interior surface defined by a plurality of exterior walls. In some embodiments, at least one protrusion extends from the interior surface of the container into the interior area. The protrusion or protrusions may be curved bumpers or may be rib members in the interior of the housing proximate the first end wall.

Generally speaking, the cartridge includes a cartridge body having cartridge walls and may further include removable sections defined in the cartridge body. In some embodiments, the cartridge wall positioned in the open face of the container may include a slit, slot, orifice or channel that may serve to control access to the paper products held

within. Desirably, the slot is defined by the front wall and the bottom wall of the cartridge. However, it is contemplated that other locations may be used.

The slit is desirably sized so that its horizontal dimension is about the same as or slightly greater than the width of the paper products within the cartridge and its vertical dimension is large enough to permit the passage of a limited number of paper products. For example, if the paper products are in the form of folded paper napkins, the vertical dimension of the slit may be sized so that a limited number of folded paper napkins may be extracted. This could be achieved by making the vertical dimension some multiple of the thickness of an individual folded paper napkin (e.g., greater than about two and less than about ten thicknesses).

The paper product may be accessed by a thumb slot and/or a finger slot. Desirably, the thumb and finger slots are located on the front and bottom faces of the cartridge.

The cartridge may define at least one slot through one of the cartridge walls, the slot being visible from outside the housing when the cartridge is in the interior area of the housing, an amount of paper products disposed within the cartridge being determinable by visually inspecting the amount of paper products through the slot.

#### **Brief Description Of The Drawings**

FIG. 1 is a perspective view of a housing of an exemplary container for dispensing paper products from a cartridge holding a plurality of paper products.

FIG. 2 is another exemplary container for dispensing paper products from a cartridge holding a plurality of paper products.

FIG. 3 is another exemplary container for dispensing paper products.

FIG. 4 is a perspective view of an exemplary cartridge which is configured for use with the exemplary containers of FIGS. 1-3.

FIG. 5 is a perspective view of another exemplary cartridge which is configured for use with the exemplary containers of FIGS. 1-3.

FIG. 6 is a perspective view of another exemplary embodiment showing an exemplary cartridge as depicted in FIGS. 4 or 5 placed in an exemplary housing as shown in FIGS. 1-3.

FIG. 7 is a perspective view of an exemplary cartridge which is configured for use with the exemplary container of FIG. 3.

FIG. 8 is a perspective view of another exemplary embodiment showing an exemplary cartridge as depicted in FIG. 7 placed in an exemplary housing as shown in FIG. 3.

FIG. 9 is yet another embodiment of an exemplary housing.

FIG. 10 is an exemplary cartridge which is intended to be inserted into the housing shown in FIG. 9.

FIG. 11 is an enlarged cross-sectional view (not to scale) of the lower portion of the container and cartridge assembly shown in FIGS. 6 or 8.

#### **Detailed Description**

The present invention relates to a container 210 for holding paper products 212 to be dispensed to a user. As shown in FIGS. 1 and 2, container 210 includes a housing 214 defined by exterior walls 216, including first wall 218, second wall 220, and a third wall 222. Exterior walls 216 define an interior surface 230, within which is disposed an interior area 228. The housing 214 further includes a first end wall 240 and may also include a second end wall 242. Paper products 212 are dispensed in a dispensing direction 244. Housing 214 includes plurality of protrusions 250, including curved bumpers 252 having ridges 254 and rib members 258 disposed in a staging area 256.

Another feature which may be seen in FIGS. 1 and 2 is the fully open face of the dispensers which includes one or more cartridge retaining means 900 which may be affixed to the end wall 240 and/or exterior walls 220 and 230.

The cartridge retaining means 900 may be small blocks, chucks, stops, wires, braces, brackets, pins, clips or the like as well as combinations thereof. Alternatively



and/or additionally, it is contemplated that other devices such as hooks, clamps or the like, adhesive materials, or interlocking or interacting container and cartridge geometries may be may be used as cartridge retaining means. The position of these means may be in the interior of the container and the illustration of the means at the exterior is not intended to  
5 be limiting.

A thumb notch 902 may be located in the first end wall 240 along the dispensing direction 244. The thumb notch may be configured in any shape or size that is appropriate for the dimensions of the dispenser and the product to be dispensed. Desirably, the thumb notch will have dimensions that are compatible with the dimensions of any finger or thumb  
10 notches in any cartridges containing paper products used with the container.

The container shown in FIG 2 is generally similar to the one shown in FIG. 2. It can be seen that the housing depicted in FIG. 2 has a plurality of protrusions, including curved bumpers 252 which may include ridges, and rib members 258 located in a staging area  
256.

15 An optional fourth wall 224 may be included in the container as shown in FIG. 3. The fourth wall 224 may partially cover the front of the housing and may function as a cartridge containing means. Although the fourth wall 224 is shown intersecting or contacting the first end wall 240, the fourth wall 224 may be separated from the first end wall and appear as a band or strip or wall connecting the second wall 220 and the third  
20 wall 222. Alternatively and/or additionally, the optional fourth wall 224 may have a fixed portion and a hinged portion that may function as a door. If an optional fourth wall 224 is used, a dispensing throat 232 may be provided at the intersection of the fourth wall 224 and the first end wall 240. In such an embodiment, paper products 212 are dispensed in a dispensing direction 244 through the dispensing throat 232. As shown in FIG. 3, the fourth  
25 wall 224 may be quite small and with the first end wall 240 form a dispensing throat 232 leaving a face of the container 210 substantially open. Further, housing 214 can also be constructed with double walls for security reasons.

The housing 214 may include an attachment portion for attaching the housing to a substantially nonhorizontal surface such as vertical wall. As shown in FIG. 3, an attachment portion 246 may define holes through the first wall 218 of the housing 214 for receiving attachment members (not shown) such as screws, bolts, nails, etc. for attaching the housing to a wall. Alternately, a mounting bracket could be formed on an exterior surface of the first wall for contacting and being supported by another bracket, screws, bolts, nails, etc. extending from a wall. Further, the housing could be secured to a wall via a glue, epoxy, etc., or any other type of adhesive. Also, it would be possible to locate the attachment portion 246 on any part of the housing 214, such as the second wall 220, the third wall 222, the first end wall 240, or second end wall 242, and to use combinations of mounting devices on several of the above-identified parts of the housing. Further, the housing could simply be positioned such that first end wall 240 is lower than the second end wall 242, and so that the first end wall 240 and possibly the first wall 218 are supported in some way without fixing the housing 214 to any particular structure.

Thus, the means for urging paper products 212 in a dispensing direction 244 may comprise any structure or orientation, or both, of the housing 214 and/or wall it is mounted on that allows paper products 212 to be urged in dispensing direction 44 by gravity. Other types of mechanisms for urging paper products 212 the dispensing direction 244 such as, for example, spring loaded plates and the like are contemplated and may be especially useful if the container is mounted horizontally. For example, the container may project horizontally from a wall or may be placed on or mounted to a horizontal surface (e.g., on a countertop, table top or workbench).

In accordance with the invention, at least one protrusion, referred to generally as 250, extends from interior surface 230 on at least one of exterior walls 216 into interior area 228 of housing 214. Desirably, as shown in FIG. 3, second wall 220 and third wall 222 include protrusions 250 extending into interior area 228. Protrusions 250 preferably comprise curved bumpers 252, which may include a plurality of ridges 254 extending across the curved bumpers perpendicular to dispensing direction 244.

Bumpers 252 extend into interior area 228 to contact paper products 212 and thereby oppose the means for urging paper products 212 in dispensing direction 244. By extending into interior area 228 to contact paper products 212, bumpers 252 impede the movement of paper products 212 in the dispensing direction 224, but do not prohibit such movement. Ridges 254 allow numerous paper products 212 to be contacted by an individual bumper and allow for a smoother movement of paper products through housing 214. In embodiments where the means for urging paper products 212 in dispensing direction 244 includes mounting housing 214 so that gravity causes such movement, protrusions 250 also support paper products 212 against the force of gravity. Protrusions 250 therefore reduce the gravitational force of the bottom of the paper products 212, thereby making it easier for a user to remove individual paper products from the container.

Generally speaking, the exterior curve of bumper may be defined by a radius of from about 1.125 to 1.750 in. The bumper may have a chordal length of from about 1.625 to 1.875 in. Individual ridges 254 may each have a radius of from about 0.125 to 0.250 in., and their centers may each be spaced about 0.250 in. from the center of bumper 252. While the disclosed bumper shape is the a desired shape, other shapes could be used.

In accordance with the invention, protrusions 250 on second wall 220 are desirably staggered from protrusions 250 on third wall 222 relative to dispensing direction 244. Such staggering provides a smooth movement of paper products 212 along dispensing direction 244. Paper products 212, being supported alternately on one side or the other by the staggered protrusions 250, "walk" down housing 214 in dispensing direction 244. Staggering protrusions 250 in dispensing direction 244 is important in embodiments where paper products 212 are moved in dispensing direction 244 due to the mounting or orientation of housing 214 by gravity. For example, if protrusions 250 were spaced opposite from each other on second wall 220 and third wall 222, paper products 212 might be entirely prevented from moving in dispensing direction and thus sit on top of a pair of protrusions 250. Also, paper products 212 might unevenly move in spurts past a pair of non-staggered protrusions 250 which could lead to misaligning of paper products and

ultimately jamming of paper products within housing 214. Thus, staggering of protrusions 250 allows an orderly walking of paper products 212 along housing 124 in dispensing direction 244 where first one side of the paper products, and then the other, moves more steadily downward.

- 5           The container 210 includes a second group of protrusions 250 extending from first wall 218 into interior area 228 to contact paper products 212. The second group of protrusions 250 is preferably disposed in a staging area 256 near dispensing throat 32 for spacing, slowing, aligning and supporting paper products 212 as they are moved in dispensing direction 244. Preferably, the second group of protrusions 250 includes
- 10 several rib members 258 extending parallel to dispensing direction 244 as shown in FIG. 2. Rib members 258 may have different dimensions to properly support and guide the paper products 212. For example, rib members 258 may have a sloping configuration and an optional radius of curvature.

          Generally speaking, the rib members 258 may have a height ranging from about

15 0.5 to about 2 inches at the location where it intersects with the first wall 218 and, in some embodiments, may even have an offset or height ranging from about 0.1 to about 0.5 inch where the rib member 258 is adjacent to or contacts the first end wall 240.

          However, it should be understood that the dimensions of these rib members may be varied to accommodate a variety of factors including, but not limited to, the size of the

20 paper product, basis weight of the paper product, composition/texture of the paper product, fold pattern of the paper product, height of the stack of paper products, force supplied by the means to urge the paper products to the dispensing throat, amount and dimensions of protrusions located on the second and third walls of the container as well as amount of other rib members positioned proximate the dispensing throat.

25           The housing 214 may be made of injection-molded plastic such as polyethylene or nylon. However, other suitable materials, such as other plastics or metals, may be provided for any or all of the parts of the housing 214. Curved bumpers 252 and rib members 258 are preferably formed integral with housing 214. However, curved bumpers

252 and rib members 258 may be formed separately from housing 214 and attached later. Also, curved bumpers 252 and rib members 258 may be made of different material from housing 214 if desired. For example, curved bumpers 252 and/or rib members 258 may be made of a more resilient material than the materials described above, such as an elastomer or rubber.

While curved bumpers 252 have been described as disposed on second and third walls 220 and 222, which are side walls in FIGS. 1 and 2, curved bumpers 252 could be disposed on any pair of opposite walls of the housing 214. Also, although rib member or members 258 have been described as disposed on the first wall 218, rib member or members 258 could be disposed on any wall or pair of opposite walls of housing.

Desirably, the paper products 212 are interfolded or tab interfolded to provide metered feeding of individual napkins one at a time. However, the present invention does not require the use of interfolded paper products.

The housing 214 may hold multiple clips of paper products 214 (if a cartridge is not used), and may extend from 30 to as much as 48 in. from end to end. Desirably, first wall 218 is angled between 0-5 degrees from the vertical to prevent paper products from falling out of the housing 214 during refilling.

Referring now to FIG. 4, there is shown a cartridge 262 which is adapted to be inserted into the interior area 228 of the housing 214 and which is further adapted for holding or containing paper products 212 to be dispensed. As illustrated in FIG. 6, the cartridge 262 is sized to fit snugly within the interior area 228 of the housing 214. If desired, leaf springs 264 (see FIG. 3) may be provided attached to the inside of the second end 242 of the housing 214 to hold the cartridge 262 in place. Any other suitable mechanism such as a tab or other interlock may be used to hold the cartridge 262 in the housing 214 is within the scope of the invention.

Referring again to FIG. 4, the cartridge 262 includes a plurality of removable portions 268, the removal of which creates openings 270 through the cartridge 262. Removable portions 268 are disposed in outside walls 272 of cartridge 262 so that, once

removable portions 268 are removed, openings 270 encompass and receive protrusions 250 that may extend from the interior surface 230 of the housing 214. Thus, upon removal of removable portions 268 and placement of cartridge 262 in housing 214, curved bumpers 252 and rib members 258 contact the paper products 212 within cartridge.

5        FIG. 5 is a perspective view of another exemplary cartridge 262. Generally speaking, the cartridge includes a cartridge body having cartridge walls and may further include removable sections defined in the cartridge body generally as described above. Since the container embodiments of FIGS. 1 and 2 described above may have an open face rather than a dispensing throat, a cartridge front wall 272a (illustrated in FIGS. 4 and  
10        5) is intended to be positioned in the open face of the container should include a slit, slot, orifice or channel 950 that can serve to control access to the paper products 212 held within. Desirably, the slot is defined by the cartridge front wall 272a and the bottom wall 272b of the cartridge. However, it is contemplated that other locations may be used.

      The slit is desirably sized so that it has a horizontal dimension "*H*" that is about the  
15        same as or slightly greater than the width of the paper products within the cartridge and a vertical dimension "*V*" that is large enough to permit the passage of a limited number of paper products. For example, if the paper products are in the form of folded paper napkins, the vertical dimension "*V*" of the slit may be sized so that a limited number of folded paper napkins may be extracted. This could be achieved by making the vertical dimension "*V*" some  
20        multiple of the thickness of an individual folded paper napkin (e.g., desirably greater than about 2 and less than about 10 thicknesses, even more desirably greater than about 2 and less than about 6 thicknesses).

      The paper product may be accessed by a thumb slot 952 and/or a finger slot 954. Desirably, these slots are located on the front and bottom faces of the cartridge and may  
25        be centered with respect to the dimensions of the cartridge or the dimensions of the slot.

      The cartridge may define at least one additional slot 282 through one of the cartridge walls, the slot being visible from outside the housing when the cartridge is in the

interior area of the housing, an amount of paper products disposed within the cartridge being determinable by visually inspecting the amount of paper products through the slot.

Cartridge 262 may also include another removable portion 278 disposed at end 280 of cartridge 262. Removable portion 278 may be removed to receive a spring-loaded plate if cartridge 262 is to be used in a container with a spring-loaded plate or other means for urging the paper products in the dispensing direction.

As shown in FIG. 7, a removable portion 274 may be provided at end 276 of cartridge 262 for use in containers of the type shown in FIG. 3 so that paper products 212 can be supported and aligned by rib member 258 for dispensing through dispensing throat 232. Alternately, end 276 of cartridge 262 may be formed such that a plurality of smaller removable portions may be provided corresponding to rib members 258. It is also contemplated that a different smaller removable portion may be provided corresponding to the dispensing throat 232. If a separate removable portion corresponding to the dispensing throat 232 is provided, it is contemplated that it may be used with or without other removable portions corresponding to rib members and/or any other protrusions.

Generally speaking, removable portions 268, 278, and 274 may either be removed (or simply not formed) during manufacture of cartridge 262 or removed during installation of cartridge 262 in housing 214. If these removable portions are to be removed as part of the manufacturing process, cartridge 262 should be shipped to the user wrapped, for example in a polyethylene bag, to prevent contamination and/or to preserve the sterility of the paper products in the cartridge. If the removable portions are to be removed as part of the installation process, the edges of the removable portions should be weakened, scored, etc. for easy removal. It is desirable that removable portion 274 should not be removed as part of the manufacturing process to ensure that paper products 212 remain properly loaded in cartridge 262.

Optional removable portions 268 may be placed on front wall 272 (and/or a back wall which is not shown) of cartridge 262. Removable portions 268 may be used if optional

protrusions 258 (i.e., rib members) are used on the first wall 218 of the housing 214 (see, for example, FIG. 2

Preferably, cartridge 262 includes at least one slot 282 extending through one of the cartridge walls 272. Slot 282 is visible from outside of housing 214 when cartridge 262  
5 is mounted in interior area 228. A user can visually determine the amount of paper products 212 remaining within cartridge 262 by inspecting the amount of paper products visible through slot 282. As shown in FIG. 7, two slots may be provided to provide a greater range of visual inspection. Any number or arrangement of slots is possible within the scope of the invention.

10 Cartridge 262 is preferably made of heavy paper or cardboard, but may be made of any other suitable material within the scope of the invention.

Referring again to FIG. 6, there is shown a perspective view of an exemplary cartridge as depicted in FIG. 4 placed in an exemplary housing as shown in FIGS. 1 or 2. A dispensing direction "*D*" is identified as generally perpendicular to the housing and  
15 cartridge assembly. If the paper product is, for example, an interfolded paper napkin or tissue, a leading flap or tail 960 would extend out of the slot 950 and be available for a user to grasp.

FIG. 8 is a perspective view of an exemplary cartridge 262 which may be of the type illustrated in FIGS. 4, 5 or 7 placed into an exemplary housing which may be of the  
20 type shown in FIG. 3 that has a dispensing throat 232. A dispensing direction "*D*" is identified as generally perpendicular to the housing and cartridge assembly. If the paper product is, for example, an interfolded paper napkin or tissue, a leading flap or tail 960 would extend out of the dispensing throat 232 and be available for a user to grasp.

The dispensing throat 232 is desirably sized so that it has a horizontal dimension  
25 "*H*" that is about the same as or slightly greater than the width of the paper products within the cartridge and a vertical dimension "*V*" that is large enough to permit the passage of a limited number of paper products. Of course, the cartridge 262 will need to be configured to cooperate with the dispensing throat. Generally speaking, if the paper products are in



the form of folded paper napkins, the vertical dimension "**V**" of the dispensing throat may be sized so that a limited number of folded paper napkins may be extracted. This could be achieved by making the vertical dimension "**V**" some multiple of the thickness of an individual folded paper napkin (e.g., desirably greater than about 2 and less than about 10 thicknesses, even more desirably greater than about 2 and less than about 6 thicknesses).

The paper product may be accessed by a thumb slot and/or a finger slot. Desirably, these slots are located on the fourth wall 224 and the first end wall 240 and may be centered with respect to the dimensions of the housing or the dimensions of the dispensing throat 232.

FIG. 9 is yet another embodiment of an exemplary housing. This embodiment differs from the embodiments shown in FIGS. 1 and 2 in that the first end wall 240 of FIGS. 1 and 27 generally slopes away from the front or open face of the housing. In contrast, the first end wall 240 of FIG. 9 slopes into or opens up to the front or open face of the housing.

FIG. 10 is an exemplary cartridge which is intended to be inserted into the housing shown in FIG. 9. The cartridge front wall 272a and the bottom wall 272b are configured to fit snugly in the housing.

FIG. 11 is an enlarged cross-sectional view (not to scale) of the lower portion of the container and cartridge assembly shown in FIG. 6. The cartridge front wall 272a, a cartridge bottom wall 272b and a cartridge back wall 272c and a stack of interfolded paper product 212 is shown. As can be seen in the enlarged and expanded view, the slot 950 has a vertical dimension "**V**" which is generally some multiple of the thickness of a single layer or ply or fold of the paper product 212. A dispensing direction "**D**" is identified as generally perpendicular to the housing and cartridge assembly. If the paper product is, for example, an interfolded paper napkin or tissue, a leading flap or tail 960 can be seen extending out of the slot 950 for a user to grasp. Pulling the leading flap 960 will result in one-at-a-time dispensing of the product.

It should be understood that FIG. 11 may also generally represent an enlarged cross-sectional view (not to scale) of the lower portion of the container and cartridge

assembly shown in FIG. 8. The cartridge front wall 272a may be read as corresponding to the fourth wall 224, the bottom wall 272b corresponding to the first end wall 240, the back wall 272c corresponding to the first wall 218, the slot 950 corresponding to the dispensing throat 232, and the finger and thumb slots in the cartridge corresponding to finger and thumb slots in the fourth wall 224 and the first end wall 240. Of course, the cartridge may be configured as shown in FIGS 4, 5 and/or 7 to cooperate with the dispensing throat.

Thus, the following description applies to embodiments of the invention having a generally open face (i.e., lacking a dispensing throat in the housing) as well as embodiments with a dispensing throat.

- 10       Gripping the interfolded product between lower grip point 1000 and a first upper grip point 1002 engages two of the interfolded paper products (e.g., napkins, tissues, wipes, etc.) for dispensing. One of which has a visible tail 960 extending from the slot 950 (or dispensing throat 232) and the other still located inside the cartridge but accessible through the finger slot 954. Pulling the product engaged at grip points 1000 and 1002 in the dispensing direction "D" will result in two of the interfolded paper products to be dispensed at a time. This result will be consistent provided the interfolding of the product is consistent and the grip areas 1000 and 1002 remain accessible.

- Pulling the product engaged at grip points 1000 and 1004 in the dispensing direction "D" will result in four of the interfolded paper products to be dispensed at a time.
- 20   This result will be consistent provided the interfolding of the product is consistent and the grip areas 1000 and 1004 remains accessible.

- Pulling the product engaged at grip points 1000 and 1006 in the dispensing direction "D" will result in six of the interfolded paper products to be dispensed at a time. This result will be consistent provided the interfolding of the product is consistent and the grip areas 1000 and 1006 remains accessible. This can be described mathematically for interfolded products as  $N = F_f \times 2$  where  $N$  = the number of products dispensed,  $F_f$  = the number of forward folds ( $F_f$ ) falling between the identified grip points and which are gripped by the user. The number of forward folds ( $F_f$ ) available for gripping is generally limited only
- 25

by the vertical dimension of the slot "V" and the size of the finger slots. Generally speaking, the "stack" of product dispensed will be in a folded configuration except for the leading and trailing edge or flap. Of course, if the product is dispensed one-at-a-time, it will be in an unfolded configuration.

5           If a non-interfolded product is used in the cartridge, the dispensing direction "D" remains the same. However, there will be no leading flap as in the interfolded format. Generally speaking, the number of products dispensed will be the same as the number of forward folds gripped unless the product is double or triple folded.

10           Thus, it can be seen how the container and cartridge may be used to dispenser a controlled amount of paper products.

          It will be apparent to those skilled in the art that various modifications and variations can be made in the present invention without departing from the scope and spirit of the invention. It is intended that the present invention include such modifications and variations as come within the scope of the appended claims and their equivalents.

15

We claim:

1. A container for dispensing a controlled amount of paper products from a cartridge holding a plurality of paper products, the container comprising:
  - a housing including a first end wall and a plurality of exterior walls defining an interior surface and an interior area within the interior surface for receiving a cartridge holding a plurality of paper products, a first, second and third of the exterior walls intersecting the first end wall on opposite sides of the first exterior wall, forming a portion of the interior surface, and defining an open face of the container,
  - a means for urging paper products within the interior area toward the first end wall in a dispensing direction, and
  - cartridge retaining means.
2. The container of claim 1, wherein the cartridge retaining means is selected from blocks, chucks, stops, wires, braces, brackets, bars, pins, clips and combinations thereof.
3. The container of claim 2, wherein the cartridge retaining means are configured on the first end wall or opposing second and third exterior walls.
4. The container of claim 2, further comprising a finger slot in the first end wall.
5. The container of claim 1, the housing further comprising a staging area proximate the first end wall for spacing and slowing the paper products.
6. The container of claim 1, further comprising protrusions extending from the portion of the interior surface on the exterior walls into the interior area for contacting the paper products to oppose the means for urging.

7. The container of claim 1, further including a cartridge for insertion into the interior area of housing for containing the plurality of paper products.

8. The container of claim 7, wherein the cartridge comprises a cartridge body  
5 having cartridge walls.

9. The container of claim 8, wherein cartridge includes a cartridge wall for positioning in the open face of the container, the cartridge wall including a slit for controlling access to the paper products held within.

10

10. The container of claim 9, wherein the cartridge is configured so the slit is defined by a front wall and a bottom wall of the cartridge.

11. The container of claim 9, wherein the cartridge is configured so the slit  
15 sized to have a horizontal dimension about the same as or slightly greater than the width of the paper products within the cartridge and a vertical dimension that is large enough to permit the passage of a limited number of paper products.

12. The container of claim 11, wherein the cartridge is configured so the vertical  
20 dimension of the slit is between about 2 and about 10 times the thickness of an individual folded paper product.

13. The container of claim 9, wherein the cartridge is configured so the paper  
products may be accessed by a thumb slot and a finger slot.

25

14. The container of claim 7, wherein the cartridge includes removable portions, removal of the removable portions creating openings in the cartridge.

15. The container of claim 14, wherein at least one of the openings in the cartridge is disposed adjacent at least one of the protrusions so that the protrusion extends through the opening to contact the plurality of paper products.

5 16. A container for dispensing a controlled amount of paper products, the container comprising:

a housing including a first end wall and a plurality of exterior walls defining an interior surface and an interior area within the interior surface for receiving a cartridge holding a plurality of paper products, a first, second and third of the exterior walls  
10 intersecting the first end wall on opposite sides of the first exterior wall, forming a portion of the interior surface, and defining an open face of the container,

a means for urging paper products within the interior area toward the first end wall in a dispensing direction, and

a fourth exterior wall that cooperates with the first end wall to define a dispensing  
15 throat for controlling access to paper products held within the container.

17. The container of claim 16, wherein the dispensing throat is sized to have a horizontal dimension about the same as or slightly greater than the width of the paper products within the container and a vertical dimension that is large enough to permit the  
20 passage of a limited number of paper products.

18. The container of claim 17, wherein the vertical dimension of the dispensing throat is between about 2 and about 10 times the thickness of an individual folded paper product.

25

19. The container of claim 16, further including a cartridge for insertion into the interior area of housing for containing the plurality of paper products.

20. A cartridge for holding and dispensing a plurality of paper products, the cartridge being insertable into an interior area of a container having a housing composed of a plurality of exterior walls to define an open face, the cartridge comprising:

5 a cartridge body including cartridge walls, wherein at least one cartridge wall is adapted for positioning at the open face of the container and further adapted to define a slit for controlling access to the paper products held within.

21. The cartridge of claim 20, wherein the cartridge is configured so the slit is defined by a front wall and a bottom wall of the cartridge.

10

22. The cartridge of claim 20, wherein the cartridge is configured so the slit is sized to have a horizontal dimension about the same as or slightly greater than the width of the paper products within the cartridge and a vertical dimension that is large enough to permit the passage of a limited number of paper products.

15

23. The cartridge of claim 22, wherein the cartridge is configured so the vertical dimension of the slit is between about 2 and about 10 times the thickness of an individual folded paper product.

20

24. The cartridge of claim 21, wherein the cartridge is configured so the paper products may be accessed by a thumb slot and a finger slot.

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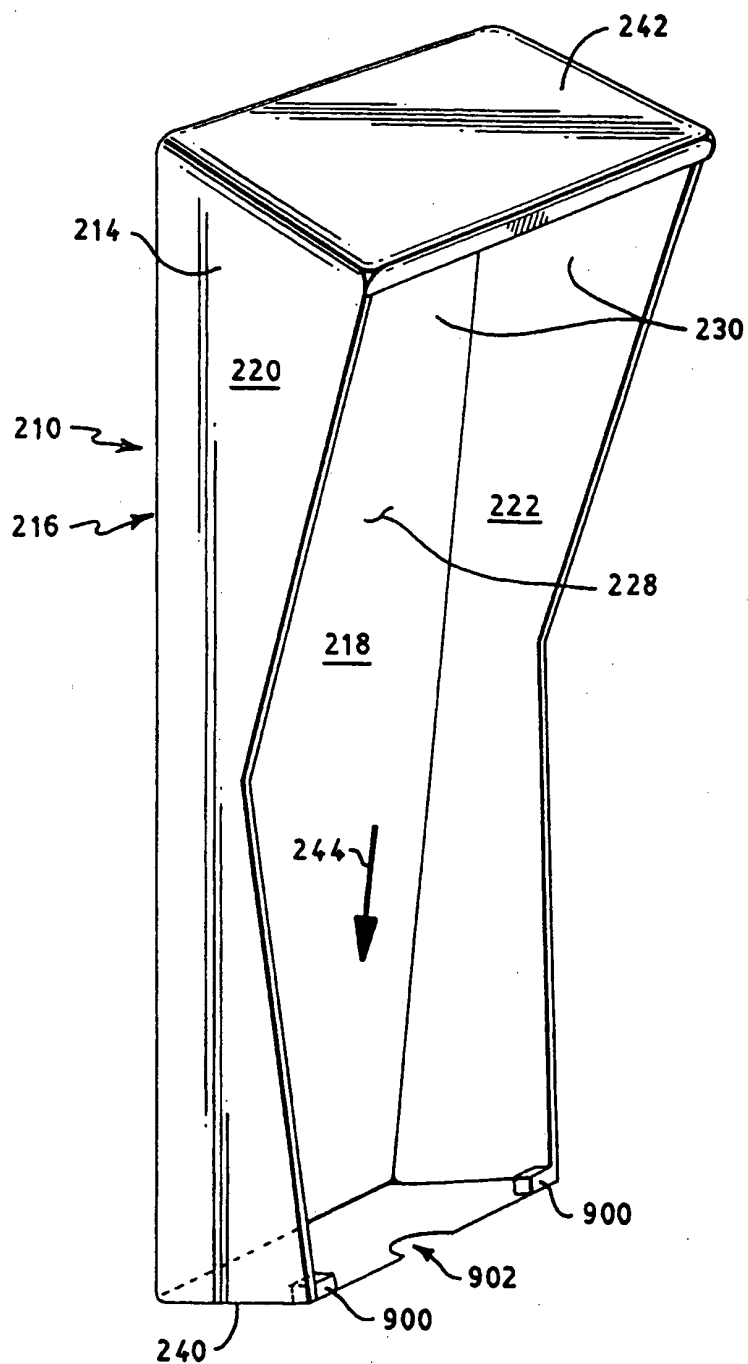


FIG. 1



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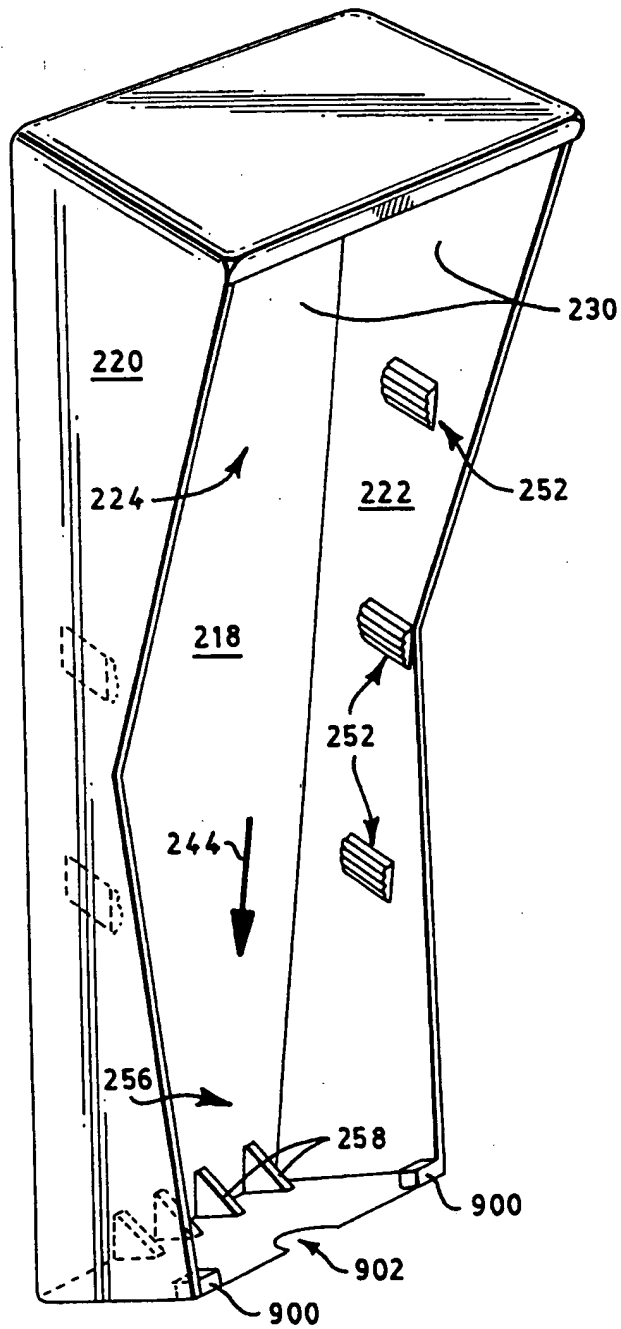
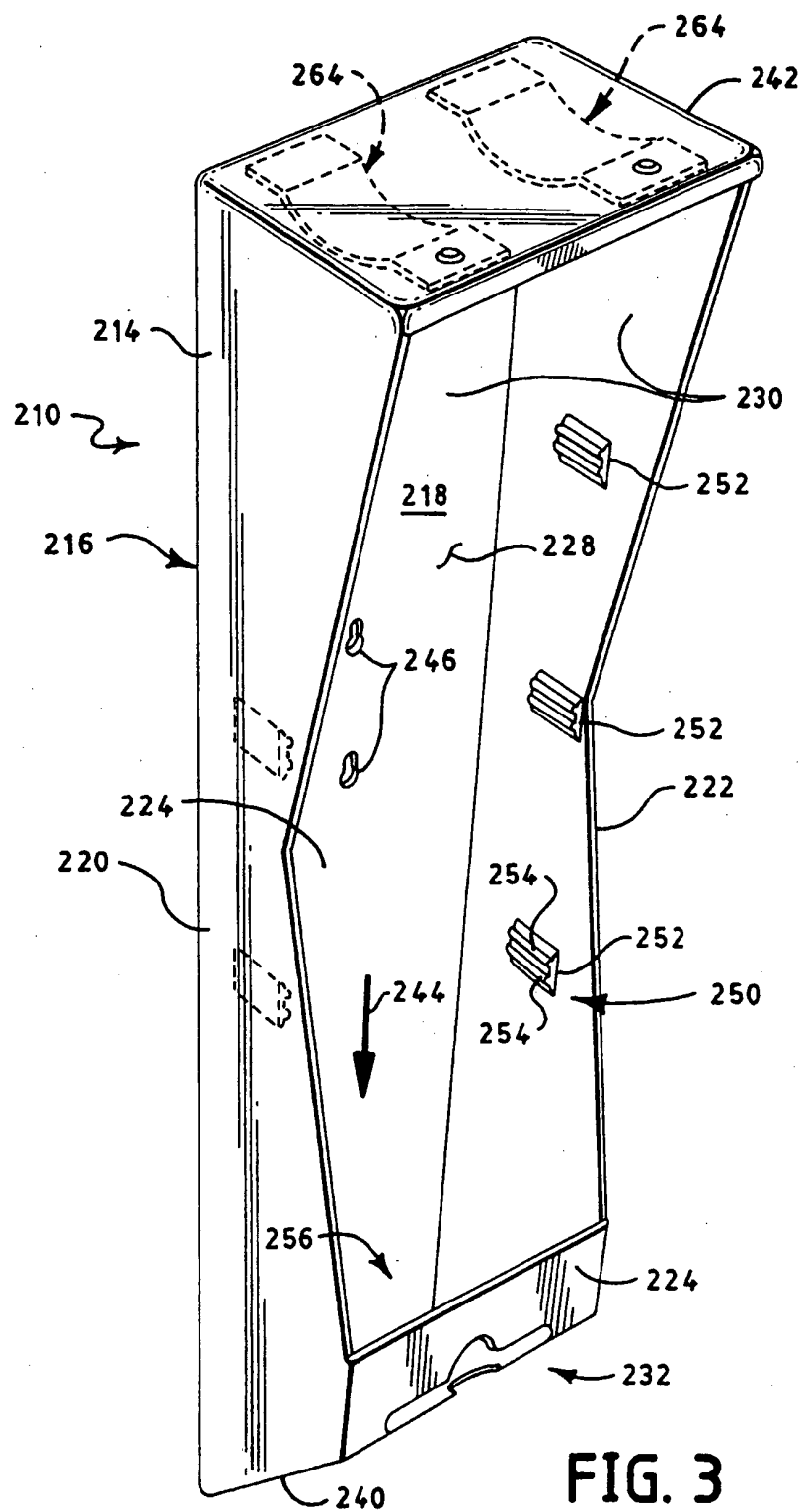
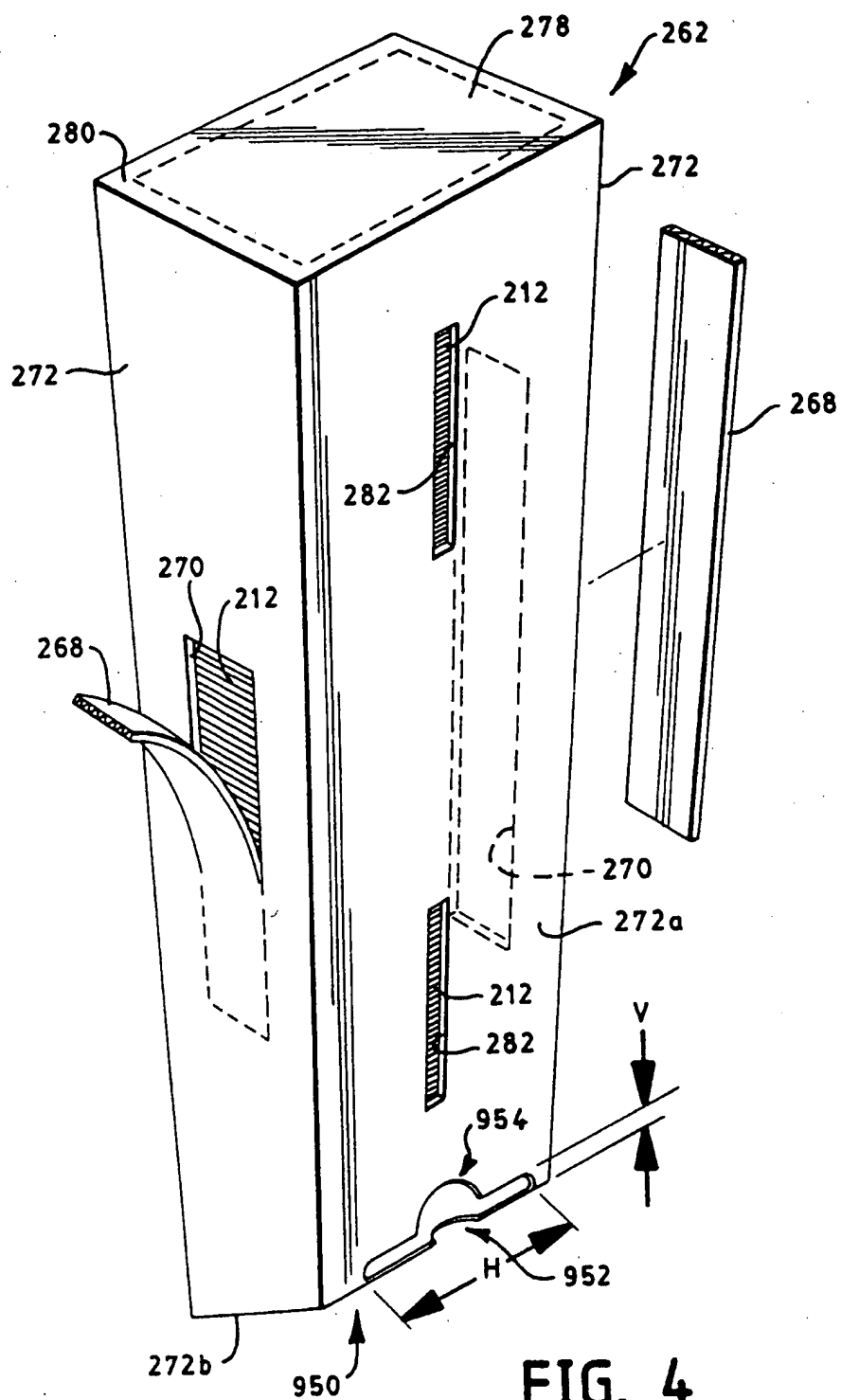


FIG. 2

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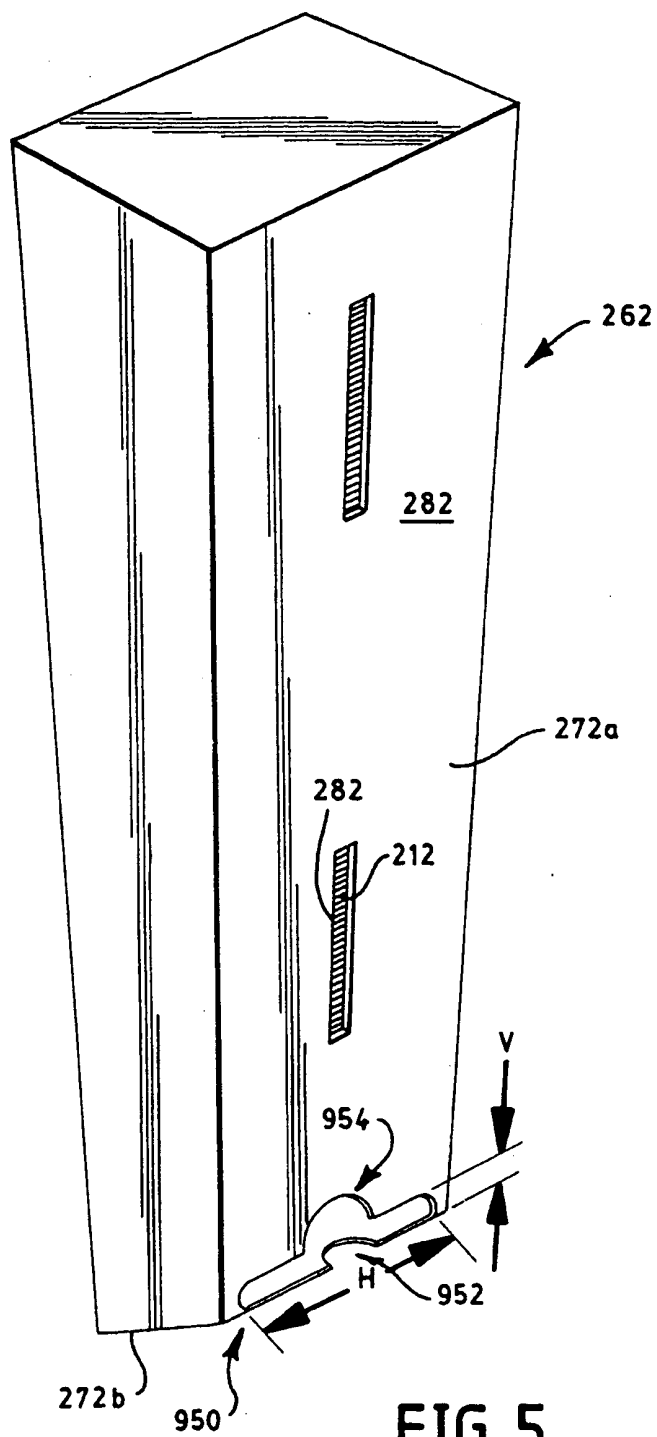


FIG. 5

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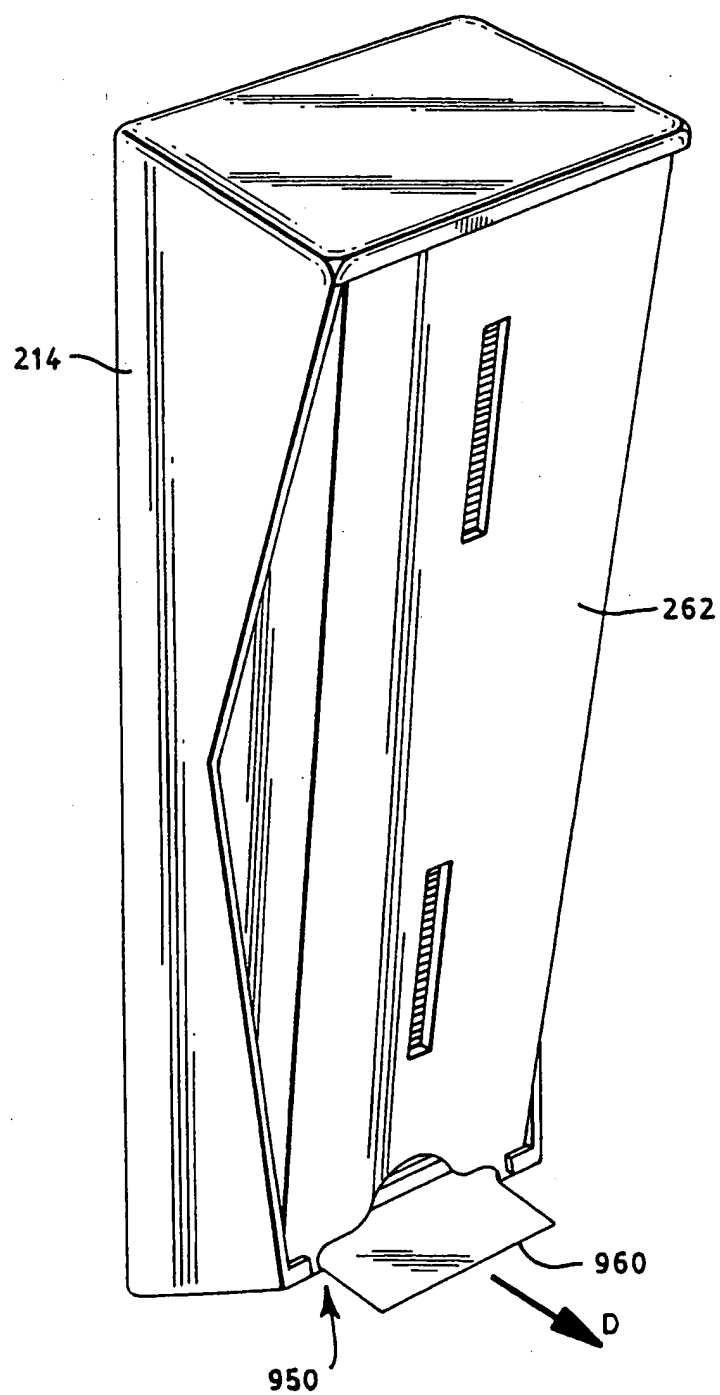
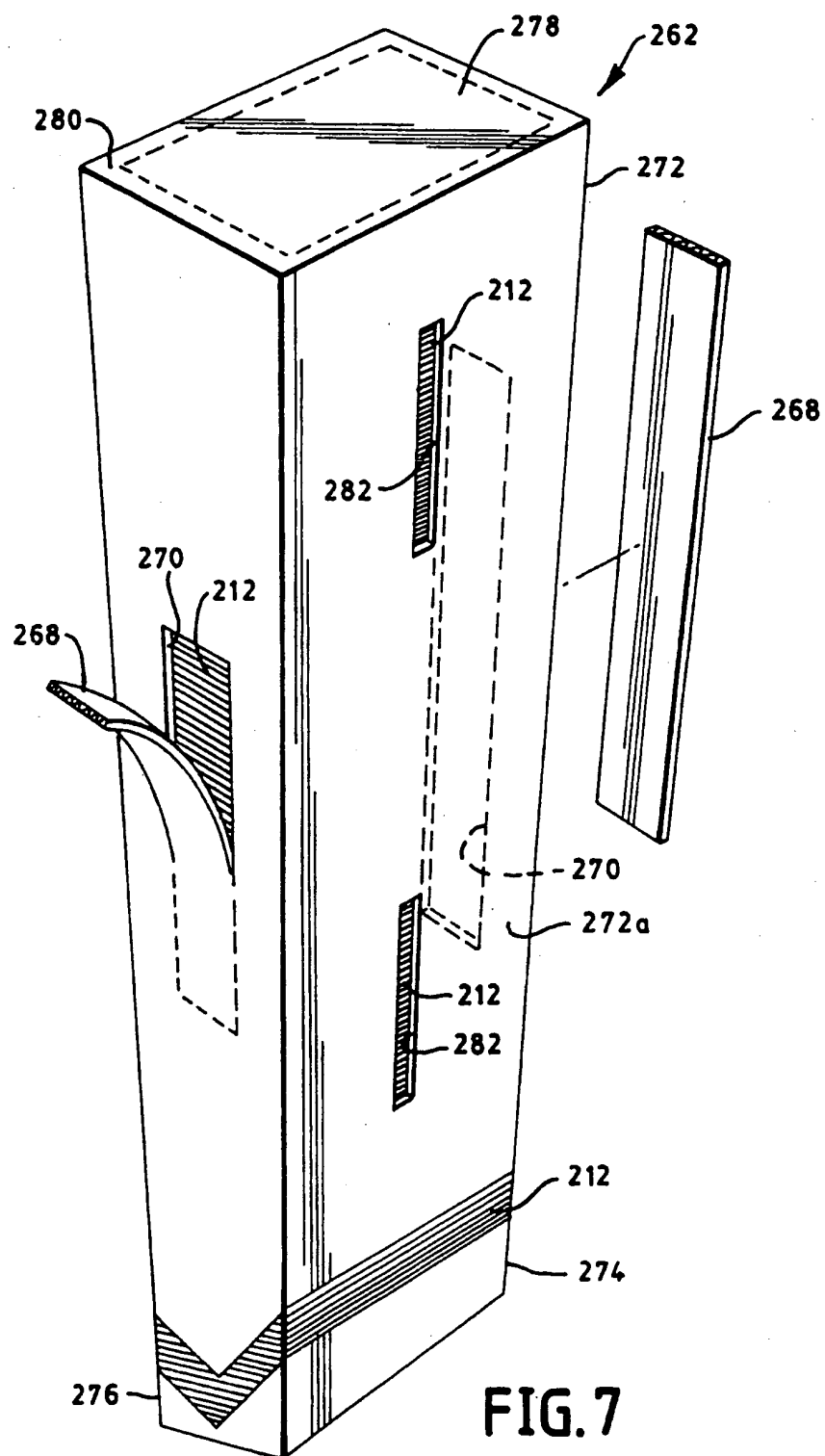


FIG. 6

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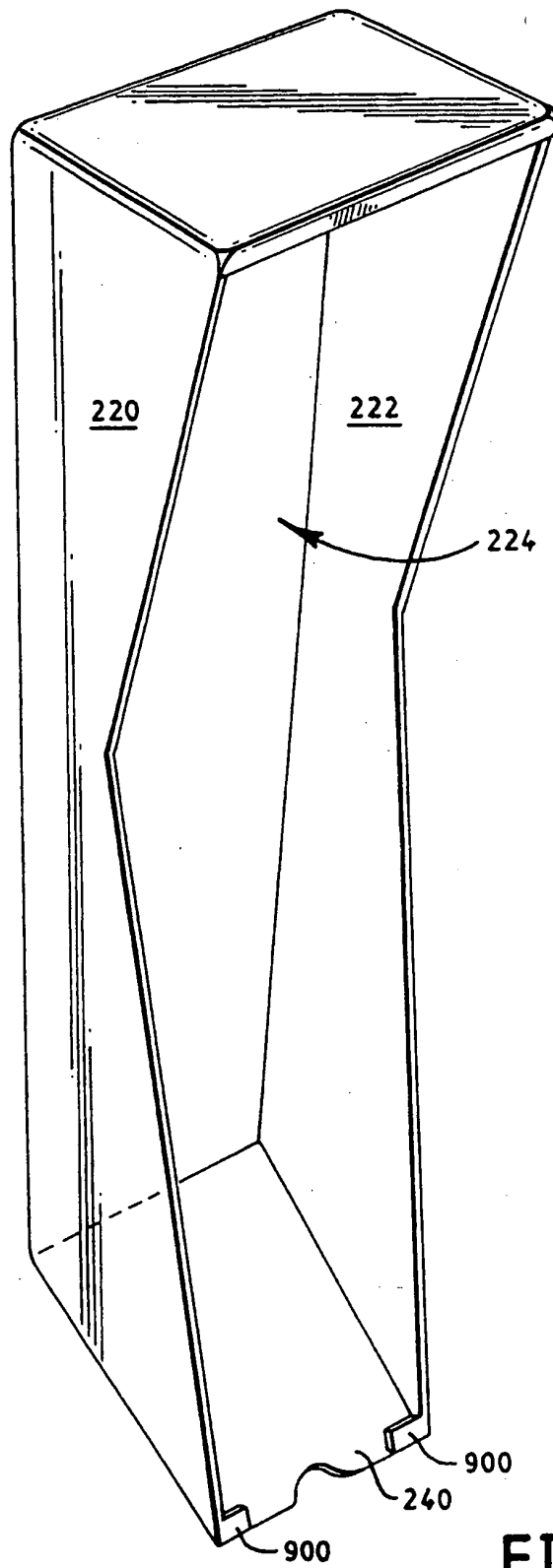


FIG. 9



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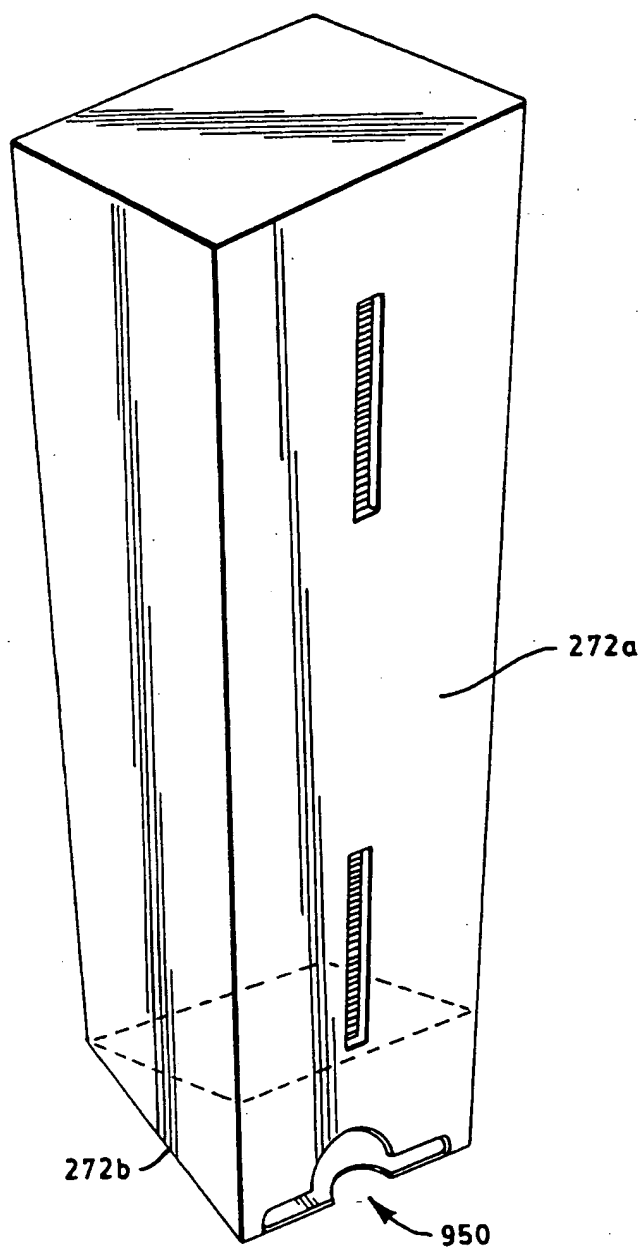


FIG. 10

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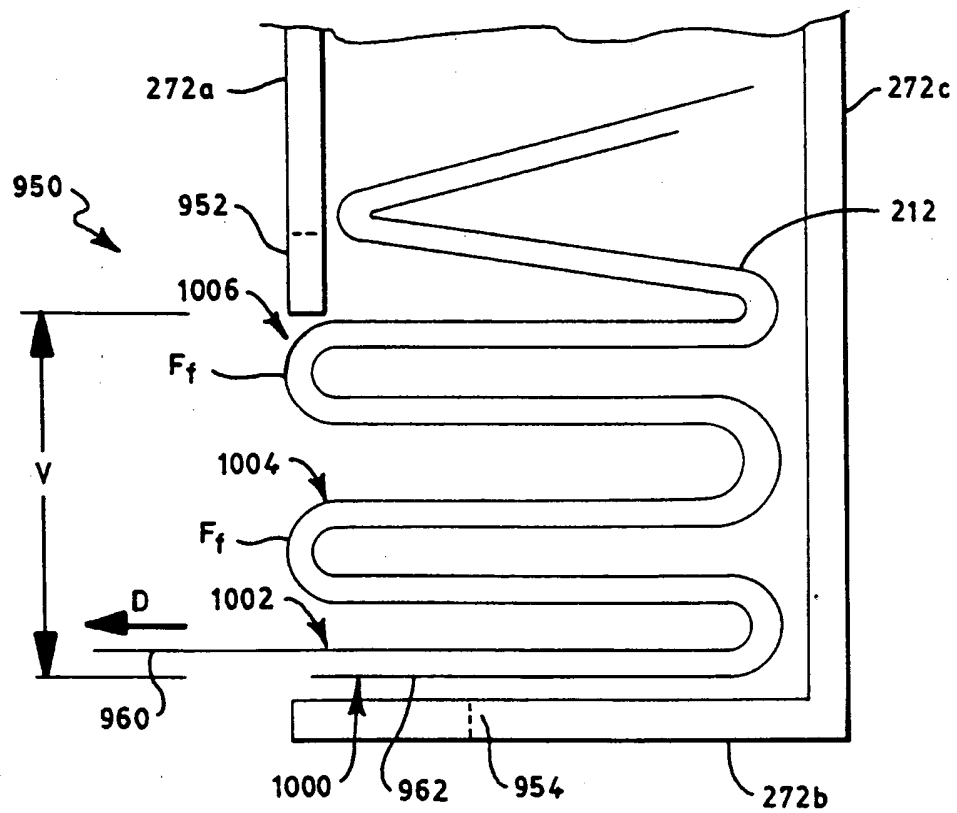


FIG. 11

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/US 99/29137

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A47K10/42

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A47K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

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A	DE 12 89 274 B (ZELLSTOFFFABRIK WALDHOF) column 4, line 45 - line 68; figure 1	1,16,20
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☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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Date of the actual completion of the international search

28 March 2000

Date of mailing of the international search report

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